REMARKS

Claims 1-21 are in the present application, except that claim 20 has been withdrawn under a Requirement for Restriction.

The Office Action rejection of claims 1-5 as anticipated under 35 USC 102 (e) by Brennecke et al. ('343), is respectfully traversed.

The Office Action states that Brennecke et al. disclose an energetic material comprising ionic liquids and an oxidized anion perchlorate wherein the salt would be oxygen-balanced or nearly so and would achieve near complete combustion. In fact, Brennecke does not teach oxidizer balanced ionic liquids and their use as highly energetic liquid monopropellants. None of his compounds would even remotely qualify for monopropellant applications. The Examiner's statement that alkyl imidazolium perchlorates would be oxygen balanced and achieve a near complete combustion is clearly incorrect. A typical methyl-ethyl imidazolium perchlorate has the composition C6H12N2ClO4. For complete combustion of all hydrogen and carbon, 12 oxygen atoms would be required. However, the compound contains only 4 oxygens.

The Office Action rejection of claims 6-16 as obvious under 35 USC 103 (a), over Brennecke et al ('343), in view on Flanagan et al ('910) is respectfully traversed.

Flanagan merely states the generally well-known fact that the heat of formation of a material can be improved by the addition of nitro or azido groups, and he applied it to the preparation of plasticizers. Although the addition of such groups to the side chains of the cation helps to improve the overall energetics and can somewhat diminish the overall oxygen demand, it still falls way short of achieving the oxygen balance required for a workable ionic liquid monopropellant. This goal can only be achieved by the simultaneous use of the large oxygen carrying anions which are the basis of this invention.

The Office Action rejection of claims and 17 & 18 as obvious under 35 USC 103 (a) over Brennecke et al, ('343) is respectfully traversed. Brennecke does not teach applications involving monopropellants, explosives, munitions or plasticizers, nor their use as chemical reagents for the synthesis of azo, nitro, nitrato, azoxy and nitroazoxy compounds. The statement by the examiner that the addition of a nitroaryl group, -C6H4NO2, would make a compound inherently explosive and exhibit oxidation reactions is incorrect. Nitrobenzene is not an explosive, is badly underoxidized, and a nitrobenzyl group would hurt and not improve the oxygen balance.

As for the Liotta et al. reference, cited but not rely upon, such patent is believed further removed from applicants' claims than are the above the two cited references.

The Office Action rejection of claims 2 & 6 as indefinite under 35 USC 112 (second paragraph) is respectfully traversed. In claim 2, "or nearly so" is replaced by "substantially" oxygen balanced, a long accepted term in claim drafting. As for the Office Action rejection of claim 6, lines 2 & 3, as to the question of which compound is modified by "an alkyl", this claim has been amended to make clear that "an alkyl " modifies both pyridium and imidizolium, which is in line with the Examiner's interpretation in the last two lines of page 2 of the Office Action.

Accordingly, the rejection of claims 2 & 6 is believed met in view of the amendments to those claims.

Returning now to review the Brennecke et al reference, there is a question as to its suitability in the above 102 (e) rejection, on page 3 of the Office Action and the above 103 (a) rejections on pages 3 & 4 of the Office Action, against applicants' respective claims listed in such rejections.

That is, the above Brennecke patent is believed not effective against applicants' above claims under 37 CFR 1.131 and sec. 715 of the MPEP. This is because applicant has submitted herewith a Declaration under 37 CFR 1.131, attesting to completing the present invention, per such claims, before the filing date of such patent.

At this point, it is noted that the present patent application has an effective filing date of 10-7-02, which is well before the issue date of the Brennecke patent of 6-17-03.

The above averments are believed to meet the tests of 37 CFR 1.131, so as to swear applicants' claims of record, including claim 1, behind the Brennecke patent and to remove it as an effective reference against such claims.

Accordingly, the above rejections of applicants' claims 1-5, 6-16 and 17&18 per the relevant paragraphs of the above Office Action, are believed met.

Further, new claim 21, which defines cations & anions that are oxygen-balanced to achieve substantially complete combustion, is believed distinguished over the above cited references. Support for such claim is found on page 4 in the specification, in the paragraph beginning at line 11 and no new matter has been added.

In view of the foregoing, the claims of record are believed distinguished over the applied art and in condition for allowance.

In accordance with Section 714.01 of the M.P.E.P., the following information is presented in the event that a call may be deemed desirable by the Examiner to: Thomas C. Stover (781) 377-3779.

Respectfully submitted,

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